# JAR Exhibit 3

# **Cost of Capital Schedules**

## JAR Exibit 3 Schedule 1, Page 1

### Verizon New Hampshire Overall Cost of Capital

	Recommended Resu	lt		
	Verizon Capital Structu	ıre	Weighted	Pre-tax
Type of Capital	Ratios	Cost Rate	Cost Rate	Cost Rate
	[A]			
Short-term Debt	18.80%	2.00% [B]	0.38%	0.38%
Long-term Debt	49.46%	6.43% [C]	3.18%	3.18%
Common Equity	31.74%	10.00% [D]	3.17%	5.36%
	100.00%		6.73%	8.92%

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Sοι		20	,
$\circ \circ \circ$	"	ᇨ	

Αl	Yahoo	Finance	and	SEC	100

[D] JAR Exibit 3

<sup>[</sup>B] Response to \_\_\_\_\_

<sup>[</sup>C] Bonds Online. Aaa to A2 spread of 0.45%added to Aaa corporate rate of 5.98%. Result of 6.43% was compared to actual yield to maturity of Verizon New York bond issue This bond, which matures in 2032 and is not callable has a yield to maturity of 6.315%. Data was obtained on 1/17/03.

### Return on Equity Required to Earn Dr. Vander Weide's Recommended Cost of Capital

	Verizon Capital Structure		Weighted	After-tax
Type of Capital	Ratios	Cost Rate	Cost Rate	Cost Rate
	[A]			
Short-term Debt	18.80%	2.00% [B]	0.38%	0.24%
Long-term Debt	49.46%	6.43% [C]	3.18%	2.07%
Common Equity	31.74%	46.90% [D]	14.88%	14.88%
	100.00%		18.44%	17.20%

[A] JAR Exibit 3

Schedule 1, Page 1

[B] JAR Exibit 3

Schedule 1, Page 1

[C] JAR Exibit 3

Schedule 1, Page 1

[D] Return on equity required to make total return equal to Dr. Vander Weide's recommended 17.20% after-tax return on capital. 17.20% was explained in technical session by Dr. Vander Weide. He said that the 17.93% in his testimony is a pre-tax return.

The weighted cost rate shown above is the traditional way the overall cost of capital is shown in rate proceedings. It is neither pre-tax or post-tax. It is a hybrid number, with the debt pre-tax and the equity after tax.

# JAR Exibit 3 Schedule 1, Page 3

### Verizon Communications Capital Structure

	12/31/2001		6/30/2002	
Short-Term and Current Long-Term Debt	\$18,699	19.3%	\$16,969	18.8%
Other Current Liabilities				
Long Term Debt	45,657	47.1%	44,639	49.5%
Total Debt	\$64,356	66.4%	\$61,608	68.3%
Total Stock Holders Equity	\$32,539	33.6%	\$28,642	31.7%
Source: Yahoo	\$96,895	100.0%	\$90,250	100.0%

Page 2 of 2nd quarter 10 Q of Verizon Communications, Inc.

# Verizon New Hampshire COST OF EQUITY SUMMARY

urrent cost of equity based upon DCF	Average for Yea		As of 8/31/2002	
Telecommunications Companies Single Stage DCF	9.12%	(A)	9.16%	_ (A)
Telecommunication Companies Multi-Stage DCF	9.97%	<b>=</b> <sup>(8)</sup> :	10.22%	_(B)
ELECTRIC COMPANIES	9.78%	[C]	9.89%	[C]
GAS COMPANIES	9.43%	[D]	9.53%	[D]
WATER COMPANIES COVERED BY VALUE LINE	9.58%	_[E] .	9.65%	_[E]
Average non-telecom from DCF analysis	9.60%	= :	9.69%	-
sk Premiuim/CAPM				_
	Low end of Range		High end of Range	
Based upon Average Return over inflation In all major sub-peroids from 1802 through 1997 (Manor sub-peroids are 1802-1870, 1871-1925, and 1926-1997)	7.95%	[F]	8.46%	{F}
Based upon analysis of historic returns from 1926-2001: Adjusted for Telecom Specific Risk Results for Equity of Average Risk	7.55%	[G]	7.90%	[G]
Average -	7.75%		8.18%	_
Midpoint		7.97%		
Results based upon DCF (Giving primary weight to single-stage DCF)		10.00%		
Recommended low end of range based upon Risk Premium/CAPM method	đ	8.00%		
Recommended Equity Cost Rate				9
Adjustment for Capital Structure				0
Recommended cost of equity				10

### Source:

[A]	Schedule JAR 5, P. 1
[B]	Schedule JAR 6, P. 2
[C]	Schedule JAR 5, P. 3
[D]	Schedule JAR 5, P. 4
(E)	Schedule JAR 5, P. 2
(F)	Schedule JAR 9
[G]	Schedule JAR 10, P. 1

# Please note there is no Schedule 3 to Exhibit 3. The next schedule is Schedule 4.

-	COMP	ARATIVE TEN CAL	COMPARATIVE COMPANIES	s S							JAR Exibit 3	JAR Exibit 3	
		3		2	3	Ę	[8]	E	ā				13
		S S	Book 1	2 <b>8</b>	Book	2		Price .	[6] Market to Book	Ē X	<u>.</u>	Dividend Yield	
	7	Per Sh	Per Sh	Per Sh	Per Sh	Ą	High for	Low for	¥	Awa		¥	ĺ
	ssue		Dec. 00	Dec. 01	Dec. 02	08/31/02	Year	Year	08/31/02	ğ	Š	8/31/2002	<b>`</b> ĕ
		3			st. by V.L.	Ē	Ē	į	Ş	Year	Yace Yace	ĝ	Year S
		₹	₹	₹	€	<u>0</u>	Ξ.	Ō,	<u>5</u>	<u>.</u>	₹	<u> </u>	<u>5</u>
RBOCS		1 01	0	6	000		6	9	į	6		700	25.50
Dell South		10./*	50.6	28.84	DS:014	\$53.32	242.93	320 IO	7.14	3.03	30.80	£94.9	K.04.7
SBC Communications		\$7.87	\$8.00	\$9.69	\$10.50 e	\$24.74	\$47.49	\$22.20	2.36	3.45	\$1.08	4.37%	3.10%
Verizon		\$10.24	\$12.79	\$11.98	\$13.65 e	\$31.00	\$55.95	\$26.01	2.27	3.20	\$1.54	4.97%	3.76%
		\$8.66	\$10.27	\$10.52	\$11.68	\$26.35	\$48.79	\$22.77	2.26	3.23	\$1,14	4.25%	3.13%
													į
ELECTRIC COMPANIES													8.10.74 8.
Ameren	ĸ	\$22.52	\$23.30	\$24.25	\$25.90 e	\$44.77	\$45.25	\$34.79	1.73	1.60	\$2.54	5.67%	6.35%
Progress Energy (CP&L+Florid:	-	\$21.38	\$26.32	\$27.45	\$29.45 e	\$48.06	\$52.70	\$37.98	1.63	1.59	\$2.18	4.54%	4.81%
Cleco Corporation	S	\$9.44	\$10.04	\$10.69	\$11.75 e	\$16.11	\$24.89	\$11.70	1.37	1.63	\$0.90	5.59%	4.92%
Con Edison	-	\$25.31	\$25.81	\$26.71	\$27.75 e	\$42.55	\$45.40	\$32.70	1.53	43	\$2.22	5.22%	5.69%
DPL Inc.	c)	\$9.20	\$6.80	\$6.89	\$6.55 e	\$19.48	\$27.25	\$15.11	2.97	3.15	\$0.94	4.83%	4.44%
DOE Inc.	-	\$18.78	\$14.02	\$9.0g	\$9.20 e	\$15.13	\$22.25	\$10.92	- 64	<u>.</u>	\$1.00	6.61%	6.03%
DTE Energy Co.	so.	\$26.95	\$28.15	\$28.48	\$30.65 e	\$43.85	\$46.84	\$33.05	143	35	\$2.06	4.70%	5.16%
Energy East (NYSEG, CMP, CT	-	\$12.84	\$14.59	\$15.26	\$17.10	\$21.55	\$22.53	\$15.78	8	- 2	96.0	4.45%	5.01%
HPL Group, Inc.	- :	2000	\$31.82	234.20	3 6	\$5.8G\$	265.30	545.06	8	5.5	25.32	8/50	4.20%
Idacom, Inc.	<u>_</u> 4	20.02	\$21.85	\$23.15	\$24.25	\$27.70	¥41.12	\$21.62	4.14	1.32	\$1.86	6.71%	5.93%
Neter (Boston Edison)	) <del>-</del>	73 903	£25,31	123.81	• 07 FCS	64.3.38	648 20	00 773	1 78	, 7,	5	7 80%	45%
Pinnacle West	- =	\$26.00	\$28.09	\$29.46	53150	\$33.51	446 A7	227.40	9	2	, Y	4 77%	130%
Potomac Electric Power	-	\$16.12	\$16.82	\$17.00	\$17.75 e	\$21.25	\$23.83	\$15.37	1 20	100	21.00	4.71%	5.10%
Puget Energy, Inc	Ξ	\$16.24	\$16.61	\$15.66	\$15.65 e	\$21.99	\$25.21	\$16.63	1.41	35	8.	4.55%	4.78%
Uff. Holdings	-	\$32.59	\$34.03	\$35.42	\$36.15 e	\$45.10	\$58.86	\$37.24	1.25	1.34	\$2.88	6.39%	5.99%
AVERAGE	'	\$20.94	\$21.57	\$21.83	\$23.00	\$33.52	\$39.75	\$25.96	1.53	1.56	11.71	5.17%	5.19%
GAS COMPANIES													
Cascade Natural Gas	m ,	\$10.36	\$10.79	\$11.01	\$11.25 e	\$20.45	\$23.27	\$15.50	1.82	1.74	20.96	4.69%	4.95%
NICOL NI MA Michigan Con	n e	\$16.80	200	\$16,13	\$16.60 e	\$29.95	\$49.00	\$18.09	1.80	2.05	51.84	6.14%	5.49%
N.W. Natural Gas	۰.	77.75	CB: / C	0.00	919.20 e	\$28.38	200.28	\$22.07	50.	9	27.70	4.25%	4.01%
Diadmont Natural Con	<b>,</b>	\$21.00 \$45.74	\$22.02	\$22.73	\$24.65 64.65	432.73	27.80	\$27.80	50.	4.	97.08	6.34%	5.88%
The state of the s	,		77.7	200	9	430.12	00.00	25.730	6	0 1	00.0	60	200
Southwest Gas	o «	410.01	41.04	1001	9 6 6 6	455.45	430.83	37.075	7.7	2 :	20.00	4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4	4.52%
WGL Holdings	9 (2)	\$14.72	\$15.31	\$16.24	\$16.90 e	\$24.54	\$29.75	\$19.25	1.45	1.48	\$1.27	5.18%	5.19%
AVERAGE	'	616 16	E16 5.8	617.99	618 18	26 96	624.40	693 AK	4.50	100	64.45	7000	7 050
		2				,	-	,	2	3	*	200	4.00%

Note: Providence Gas was excluded because it was purchased by Southam Union WATER COMPANIES COVERED BY VALUE LINE

2.79% 2.51% 4.65% 2.28%	3.06%
3.49% 2.21% 4.23% 2.63%	3.14%
\$0.87 \$0.98 \$1.12 \$0.53	1 20.0\$
2.27 2.18 1.87 3.22	2 38
2.42 2.06 2.08	2 23
\$20.26 \$33.81 \$20.47 \$16.02	\$22.64
\$41.98 \$44.33 \$27.74 \$30.32	\$36.09
\$24.90 \$44.30 \$26.45 \$20.07	\$28.93
က္ကေတ် စေရာစေ	1.
\$14.15 \$18.30 \$12.85 \$7.50	\$13.20
\$13.22 \$14.1 \$17.58 \$18.3 \$12.95 \$12.8 \$6.91 \$7.5	\$12.67 \$13.20
	\$12.24 \$12.67 \$13.20
\$13.22 \$17.58 \$12.95 \$6.91	\$11.94 \$12.24 \$12.67 \$13.20

Sources: (A) Most current Value Line at time of prep. of schedule. [B] Yahoo Finance (C) Market price divided by book value (D) Dividend rate divided by market price [D] Dividend rate divided by market price

COMPARATIVE COMPANIES FARMINGS PER SHARF AND RETURN ON EQUITY	RETURNO	N EQUITY	JAR Exibit 3 Schedule 4. F	JAR Exibit 3 Schedule 4, Page 2	
	Ξ	Z	9	4	
	EPS	EPS	Return	Value Line	Returnon
	2001	2002	on Eq.	Future Exp.	Equity 2001
			1001		
	₹	₹	<u>10</u>	Æ	
Bell South	\$2.10	\$1.45	13,94%	16.50%	22.19%
SBC Communications	\$2.35	\$2.30	22.78%	19.50%	25.15%
Verizan	\$3.00	\$3.05	23.80%	17.50%	24.22%
	\$2.48	\$2.27	20.18%	17.83%	23.85%

	•	12.00% 12.76%			•	13.50% 7.88%	11.50% 7.56%		11,00% 14,00%	10.00% 14.90%		4.00% 13.31%	10.50% 12.79%		10.00% 7.56%	_	12.47% 12.90%		00% 13.49%	50% 19.00%	11.50% 10.30%				8.00% 6.75%	12.50% 11.92%	100
									13.34% 11.	9.92% 10.			12.14% 10.				11.85% 12.		10.33% 14.		9.80% 11.			12.84% 11.		-	10000
	3.15	\$3.90	1.45	3.15	0.95	1.20	\$3.75	1.60	4.75	\$2.35		\$3.25	\$3.70	1.95	1.20	\$3.35 e	\$2.65		1.15 e	2.65	\$1.85 e	2.75 e	1.95	2.45 e	1.45 e	1.20	1
							\$2.14					\$3.27	\$3.68			\$4.21	\$ 02.25		\$1.47		\$1.88						,
ELECTRIC COMPANIES	Ameren	Progress Energy (CP&L+Florida	Cleco Comoration	Con Edison	DPL Inc.	DOE Inc.	OTE Energy Co.	Energy East (NYSEG, CMP, CT	FPL Group, Inc.	Idacom, Inc.	IPALCO Enterprises	Nstar (Boston Edison)	Pinnacle West	Potomac Electric Power	Puget Energy, Inc.	UIL Holdings	AVERAGE	GAS COMPANIES	Cascade Natural Gas	Nicor	N.W. Natural Gas	Peoples Energy	Piedmont Natural Gas	South Jersey Industries	Southwest Gas	WGL Holdings	

# WATER COMPANIES COVERED BY VALUE LINE

American States Water Co.	\$1.35	\$1.40		10.79%	11.00%	10.99%	
American Water Works	\$1.69	\$1.70	Ф	9.86%	11.50%	10.03%	
California Water Service	\$0.94	\$1,15		8.90%	11.50%	7.14%	
Philadelphia Suburban	\$0.85	\$0.90	•	13.50%	14.00%	14.01%	
	\$1.21	\$1.29	_	10.75% 12.00%	12.00%	10.54%	

e= Estimated by Value Line

(A) Value Line (B) Earnings Per Share divded by average book value. Book value shown on JAR Exibit 3 NOTE: Value Line forecasted a 23% earned return on equity for DPL. Inc. for 2003-2005 in its and 21% for 2004-2006 in its April 2001 edition.

This was ackleded from the computations because both 21% and 23% is much higher than what its austainable over the long-term.

Source

VALUE LINE BETA [A]	0.85 0.85 1.05 0.92	0.60 NMF 0.65 0.75 0.75 0.56 0.60 0.50 0.50	0.50 0.50 0.50 0.55 0.65 0.60	0.65 0.00 0.00 0.75 0.05 0.70 0.70 0.65	0.65 0.50 0.60 0.60 0.60
3 . Page 3	BLS SBC VZ	SPE ESPEC	NST PNW POM PSD UIL	CGC GAS NWN NWN PGL PNY SUI SUI WGL	AWR AWK CWT PSC
JAR Exibit 3 Schedule 4, Page 3 Schedule 4, Page 3 Schedule 4, Page 3 Schedule 5, Page 5 Schedule 5, Page 7 Schedule 6, Page 7 Schedule 6, Page 7 Schedule	14.02% 18.77% 18.94% 17.24%	13.46% 14.02% 11.66% 21.26% 15.91% 12.97% 12.81%	15.12% 11.85% 10.53% 9.61% 9.87%	16.78% 11.12% 11.56% 13.31% 8.81% 8.68%	10.72% 11.09% 11.74% 14.49%
Earnings 2007 at Zack's Growth [C]	\$2.02 \$3.22 \$4.11 \$3.12	\$3.90 \$3.75	\$4.63 \$5.07 \$2.37 \$1.61 \$3.79	\$1.48 \$2.65 \$2.65 \$2.45 \$2.01 \$1.44	\$1.70 \$1.38 \$1.54 \$1.54
Y/E Book in 2007 at Zack's Growth [C]	\$14.89 \$17.99 \$22.71 \$18.53	\$29.37 \$40.00 \$15.40 \$32.94 \$661 \$10.37 \$20.92 \$51.58	\$31.42 \$44.23 \$23.10 \$16.85 \$38.68	\$12.36 \$22.73 \$22.73 \$28.63 \$21.41 \$25.28 \$23.30 \$16.50	\$16.22 \$22.01 \$13.13 \$9.24
	\$13.98 \$16.29 \$20.68 \$16.98	\$28.62 \$37.60 \$14.53 \$31.83 \$6.60 \$10.11 \$38.60 \$20.07 \$48.30 \$26.58	\$29.81 \$41.36 \$21.95 \$16.58 \$38.15	\$12.12 \$20.33 \$21.94 \$27.74 \$20.97 \$24.01 \$22.43	\$15.57 \$21.00 \$13.09 \$8.70
ACK'S CONSENSUS GROWTH RATES	6.90% 6.94% 6.14% 6.66%	4.38% 6.88% 9.69% 3.69% 8.13% 6.52% 6.13% 6.13%	7.33% 6.50% 4.00% 6.00% 2.50%	5.25% 6.73% 6.83% 4.67% 6.00% 6.80% 3.65%	4.00% 7.00% 6.00% 7.53% 6.16%
Y IMPLIET IS GROW Dividends	\$0.80 \$1.08 \$1.54 \$1.14	\$2.54 \$2.18 \$2.22 \$2.22 \$1.00 \$1.00 \$2.05 \$2.32 \$1.86	\$2.12 \$1.60 \$1.00 \$2.88	\$0.96 \$1.26 \$1.26 \$2.08 \$1.50 \$1.50 \$1.27	\$0.87 \$0.98 \$1 12 \$0.53
ONSENSU DNSENSU Earnings 2002 (A)	\$1.45 \$2.30 \$3.05 \$2.27	\$3.95 \$3.95 \$3.15 \$0.95 \$1.20 \$1.20 \$1.60 \$1.65 \$2.75	\$3.25 \$1.35 \$1.20 \$3.35	\$1.15 \$2.65 \$1.85 \$2.75 \$1.95 \$1.20	\$1.40 \$1.70 \$1.15 \$0.90
RETURN ON EQUITY IMPLIED IN ZACK'S CONSENSUS GROWTH I  YE Earnings Dividends CC Book 2002 Gr  [3] Gr  [4] [A] [B] gr	\$10.90 \$10.50 \$13.65 \$11.68	\$25.90 \$129.45 \$1.75 \$27.75 \$6.55 \$9.20 \$30.65 \$17.10 \$37.00	\$24,40 \$31,50 \$17,75 \$15,65 \$36,15	\$11.25 \$16.60 \$19.20 \$19.40 \$19.40 \$19.45 \$19.45 \$10.90	\$13.22 \$17.58 \$17.96 \$6.91
	Bell South SBC Communications Verzon	ELECTRIC COMPANIES Ameren Progress Energy (CP&L+Florida Progress) Gleco Comporation DPL Inc. DPL Inc. DPE Energy Ca. Energy East (NYSEG, CMP, CT Natural and Energy East (NYSEG, Inc. idscop, Inc.	PALCO Enterpress Natar (Boston Edison) Pirmacle West Potomac Electric Power Puge Energy, Inc. UIL Holdings AVERAGE	CAS COMPANES CASCAGE STATURIT GAS NICOT NI	WATER COMPANIES COVERED BY VALUE LINE American Sittes Water Co. American Water Works \$17.5 California Water Service \$15.5 Philadelphia Suburban \$15.0
		ייייי			

<u>₹⊠</u>⊡

Value Line
Yahoo financial website
Projected return on equity is obtained by escalating both dividends and earnings per share by the
Projected return on equity is obtained by escalating both dividends and earnings per share by the
Projected return on equity is obtained and subtracting
dividends in each year to determine the book value.

s January 2001 edition,

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 8/31/02	BASED UPON MARKET PRICE AS OF 8/31/2002
1 Dividend Yield On Market Price	[8]	3.13%	3.13%
2 Retention Ratio:			
<ul> <li>a) Market-to-book</li> </ul>	[B]	3.23	2.26
b) Div. Yld on Book	[C]	10.11%	7.06%
c) Return on Equity	[A]	16.00%	13.00%
d) Retention Rate	[D]	36.84%	45.66%
3 Reinvestment Growth	[E]	5.89%	5.94%
4 New Financing Growth	į́Fj	0.00%	0.00%
5 Total Estimate of Investor Anticipated Growth	[G]	5.89%	5.94%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.09%	0.09%
7 Indicated Cost of Equity	[1]	9.12%	9.16%

# Some of the Considerations for determining Future Expected Return on Equity:

Source
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		From 2001 Verizo	n NJ	
[A]	Value Line Expectation	19.50%	17.83%	Schedule 4, Page 2
	Expectation Derived from Zack's Consensus Growth Rate	e	17.24%	Schedule 4, Page 3
	Earned Return on Equity in 2002	20.53%	20.18%	Schedule 4, Page 2
	Earned Return on Equity in 2001	22.01%	23.85%	Schedule 4, Page 2
	Value Line Telecommunications Companies	12.00%	7.00%	Page 720 of 7/5/02 Value Line
[B]	JAR Exibit 3		6.50%	10/4/02 Value Line
[C]	Line 1 x Line 2a			70. WOL VAIGE EME
[D]	1- Line 2b/Line 2c			
(E)	Line 2c x Line 2d			
[F]	Estimated impact of dilution or premium due to sale of equipmathematically derived result based upon the Value Line to	ity at other than book valui forecasted external financi	e. Computing rate.	ed based upon
[G]	[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Line 3 + Line 4	Ext. Fin. rate used	j =	0.00% [J]
(H)	Line 1 x one-half of line 5			

- [J] (i) (H) Line 1 + Line 5 + Line 6 Schedule 8

### **COMPARATIVE WATER COMPANIES** DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

JAR Exibit 3 Schedule 5, Page 2

		BASED ON AVERAGE MARKET PRICE	BASED UPON MARKET PRICE
		FOR	AS OF
		Year Ending 8/31/02	8/31/2002
Market-to-book			
1 Dividend Yield On Market Price	[B]	3.06%	3.14%
2 Retention Ratio:			
a)	[B]	2.38	2.23
b) Div. Yid on Book	[C]	7.28%	7.00%
c) Return on Equity	[A]	11.00%	11.00%
d) Retention Rate	[D]	33.77%	36.36%
3 Reinvestment Growth	[E]	3.72%	4.00%
4 New Financing Growth	[F]	2.71%	2.41%
5 Total Estimate of Investor	[G]	6.43%	6.41%
Anticipated Growth			
6 Increment to Dividend Yield	[H]	0.10%	0.10%
for Growth to Next Year			
7 Indicated Cost of Equity	[1]	9.58%	9.65%

## Some of the Considerations for determining Future Expected Return on Equity:

### Source:

[A]	Value Line Expectation		12.00%	JAR Exibit 3
	Expectation Derived from Zack's C	Consensus Growth Rate	12.01% \$	Schedule 4, Page 3
	Earned Return on Equity in	2000		Schedule 4, Page 2
	Earned Return on Equity in	1999		Schedule 4, Page 2
	For recommended expectation, se	e text.		,
[B]	JAR Exibit 3	ınd		
	Schedule 4, Page 2			
[C]	Line 1 x Line 2a			
[D]	1- Line 2b/Line 2c			
[E]	Line 2c x Line 2d			

Estimated impact of dilution or premium due to sale of equity at other than book value. Computed based upon mathematically derived result based upon the historical external financing rate.

[M/B X (Ext. Fin Rate+1)/(M/B + Ext. Fin. Rate-1)

Ext. Fin. rate used = 2.1 [F] 2.00% [J]

[G] Line 3 + Line 4

Line 1 x one-half of line 5 Line 1 + Line 5 + Line 6 [H]

[1]

[J] Derived from share growth forecast in Value Line

# COMPARATIVE ELECTRIC COMPANIES DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

JAR Exibit 3 Schedule 5, Page 3

		BASED ON AVERAGE	BASED UPON
		MARKET PRICE	MARKET PRICE
		FOR	AS OF
		Year Ending 8/31/02	8/31/2002
1 Dividend Yield On Market Price	[B]	5.19%	5.17%
2 Retention Ratio:			, , , , , , , , , , , , , , , , , , , ,
a) Market-to-book	[B]	1.56	1.53
b) Div. Yld on Book	[C]	8.08%	7.93%
c) Return on Equity	[A]	12.00%	12.00%
d) Retention Rate	[D]	32.63%	33.94%
3 Reinvestment Growth	(E)	3.92%	4.07%
4 New Financing Growth	(F)	0.55%	0.53%
5 Total Estimate of Investor	[G]	4.47%	4.60%
Anticipated Growth			
6 Increment to Dividend Yield	[H]	0.12%	0.12%
for Growth to Next Year			
7 Indicated Cost of Equity	[1]	9.78%	9.89%

# Some of the Considerations for determining Future Expected Return on Equity:

Source:

[A]	Value Line Expectation		12.47%	Schedule 4, Pag	ge 2
	Expectation Derived from Zack	r's Consensus Growth Rate	13.09%	Schedule 4, Pag	ge 3
	Earned Return on Equity in	2002	11.85%	Schedule 4, Pag	ge 2
	Earned Return on Equity in	2001	12.90%	Schedule 4, Pag	ge 2
[B] [C] [D] [E] [F]	mathematically derived result	premium due to sale of equity at based upon the Value Line forec	asted external financing rate.	ed based upon	
[G]	[M/B X (Ext. Fin Rate+1]/(M/B Line 3 + Line 4	+ Ext. Fin. Rate-1)	Ext. Fin. rate used =	1.00%	[J]
[7] [1] [H]	Line 1 x one-half of line 5 Line 1 + Line 5 + Line 6 Schedule 8				

# COMPARATIVE GAS COMPANIES DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

JAR Exibit 3 Schedule 5, Page 4

			BASED ON AVERAG MARKET PRICE	E	BASED UPON MARKET PRICE
			FOR		AS OF
			Year Ending 8/31/02		8/31/2002
	Dividend Yield On Market Price	[B]	4.95%		4.89%
	2 Retention Ratio:				
	a) Market-to-book	[B]	1.60		1.59
	b) Div. Yld on Book	[0]	7.93%		7.76%
	c) Return on Equity	[A]	12.00%		12.00%
	d) Retention Rate	(D)	33.89%		35.33%
	3 Reinvestment Growth	(E)	4.070/		4.049/
		(E)	4.07%		4.24%
	4 New Financing Growth	(F)	0.30%		0.29%
	5 Total Estimate of Investor Anticipated Growth	[G]	4.37%		4.53%
	6 Increment to Dividend Yield	[H]	0.11%		0.11%
	for Growth to Next Year				<b></b> ,
	7 Indicated Cost of Equity	[1]	9.43%		9.53%
Som	e of the Considerations for determining F	Future Expected F	Return on Equity:		Course
					Source:
[A]	Value Line Expectation Expectation Derived from Zack's Conser	mun Cunudh Data		12.88%	Schedule 4, Page 2
	Earned Return on Equity in	2002		11.89% 10.82%	Schedule 4, Page 3 Schedule 4, Page 2
	Earned Return on Equity in	2001		12.53%	Schedule 4, Page 2
[B]	For recommended expectation, see text.  JAR Exibit 3 and				
[C]	Schedule 4, Page 2 Line 1 x Line 2a				
[D]	1- Line 2b/Line 2c				
(E)	Line 2c x Line 2d				
[F]	Estimated impact of dilution or premium	due to sale of equi	ty at other than book value	. Comput	ed based upon
	mathematically derived result based upon [M/B X (Ext. Fin Rate+1)/(M/B + Ext. Fin.	on the historical ex Rate-1\	ternal financing rate. Ext. Fin. rate used	-	0.600/ 7.11
[G]	Line 3 + Line 4		LAL TIN. Fale USED	~	0.50% [J]
(H)	Line 1 x one-half of line 5				
[J] [I]	Line 1 + Line 5 + Line 6 Schedule 8				
[4]	Ochedule o				

8/31/2002

JAR Exibit 3 Schedue 6, Page 1

RBOCS FULL DCF METHOD Based on Market Price on

Very				Based on	Market F	rice on	8/31/2002									
Very   Very   Final   Policy   Per   Part				[2]				[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Per Share   Per Share   Rate   From   to Book   East Fin.		Year	Year End	Retention	Dividend	Earnings	Retained	External	Increme	Total	Market	Mkt to	Expect.			
Print   Prin			Book	Rate		Per Share	Earnings	Financin	to book	Increment	Price	Book	Ret. on	from	from	Cash
Part							Per Share	Rate	from	to Book			Equity	Stock	Div.	
Part									Ext. Fin.							
			[A]	ſBI	IC)	ID)	(E)	(F)		(H)	ll3	1.11	(K)		(M)	INI
2002   S11.68   50 16%   S11.73   S2.27   S1.14   S2.63   S2.63   S2.63   S2.63   S2.63   S2.63   S1.29   S2.29   S1.28   S2.50   S1.32   S2.17   S2.26   S2.27   S2				(-)	t-1	1-1	(-)	F 1	1-1	£ 1			traj	[-]	[141]	1991
2003   \$12.03   \$2.034   \$51.08   \$2.50   \$1.32   \$1.92   \$2.917   \$2.62   \$2.034%   \$1.18   \$1.19	1	2002	\$11.68	60 16%	£1 13	<b>¢</b> 2 27	61 14							reno no		(BOC OF)
First   2004   \$114 65   65 79%   \$1 21   \$2.80   \$1.59   \$31.69   \$32.62   \$2.26   20.44%   \$1.21   \$1.21   \$1.21   \$1.22   \$2.005   \$15.99   \$9.80										*4.00				(\$20.30)		, ,
Stope   2006   \$11-99   59   69   69   \$1.24   \$3.10   \$1.86   \$1.86   \$1.86   \$380.65   \$2.26   \$2.39   \$1.20   \$1.																
2006																
2007   \$18.59   45.66%   \$1.28   \$2.35   \$1.07   0.00%   \$0.00   \$1.07   \$41.63   \$2.66   13.00%   \$1.36   \$1.35   \$1.28   \$1.28   \$2.008   \$1.35   \$2.49   \$1.14   0.00%   \$0.00   \$1.14   \$44.49   \$2.66   13.00%   \$51.44   \$1.41   \$1.41   \$1.42   \$1.21   0.00%   \$0.00   \$1.28   \$50.10   \$2.66   13.00%   \$51.45   \$1.44   \$1.42   \$1.21   0.00%   \$0.00   \$1.28   \$50.10   \$2.66   13.00%   \$1.45   \$1.44   \$1.42   \$1.21   \$1.20   \$1.20   \$1.20   \$1.00   \$1.26   \$1.20	Stage														\$1.24	\$1.24
2008 \$19.73 45.66% \$1.35 \$2.46 \$1.14 \$0.00% \$0.00 \$1.14 \$44.40 \$2.26 \$13.00% \$1.35 \$1.35 \$1.35 \$2.00 \$		2006	\$17.52	58.82%	\$1.28	\$3.10	\$1.82			\$1.82	\$39.51	2.26	18.50%		\$1.28	\$1.28
2008 \$20.93 46.68% \$1.44 \$2.64 \$1.21 0.00% \$0.00 \$1.21 \$47.21 2.28 13.00% \$1.40 \$1.44 \$1.44 2.00 \$1.28 0.00% \$0.00 \$1.28 \$50.10 2.28 13.00% \$1.50 \$1.52 \$1.52 \$1.52 \$1.62 2.011 \$23.57 45.68% \$1.62 \$2.98 \$1.36 0.00% \$0.00 \$1.83 \$50.10 2.28 13.00% \$1.62 \$1.52 \$1.52 \$1.62 2.011 \$23.57 45.68% \$1.62 \$2.98 \$1.36 0.00% \$0.00 \$1.44 \$56.42 \$2.68 13.00% \$1.62 \$1.		2007	\$18.59	45.66%	\$1.28	\$2.35	\$1.07	0.00%	\$0.00	\$1.07	\$41.93	2.26	13.00%		\$1.28	\$1.28
2009 \$20,93 46,66% \$1.44 \$2.64 \$1.21 0.00% \$0.00 \$1.21 \$47.21 2.26 13.00% \$1.44 \$1.44 2000 \$1.52		2008	\$19.73	45.66%	\$1.35	\$2.49	\$1.14	0.00%	\$0.00	\$1.14	\$44.49	2.26	13.00%		\$1.35	\$1.35
2010   \$22 21   45.66%   \$1.62   \$2.86   \$1.28   0.00%   \$0.00   \$1.28   \$50.10   2.26   \$1.00%   \$1.50   \$1.52   \$1.52   \$2.10   \$2.10   \$2.10   \$2.50   \$1.60   \$1.62   \$2.98   \$1.36   \$0.00%   \$0.00   \$1.63   \$53.17   \$2.6   \$1.00%   \$1.72   \$1.72   \$1.72   \$1.72   \$1.72   \$2.13   \$2.50   \$4.566%   \$1.82   \$3.35   \$1.53   \$0.00%   \$0.00   \$1.53   \$5.60   \$2.26   \$13.00%   \$1.82   \$1.82   \$2.013   \$2.65   \$4.566%   \$1.82   \$3.35   \$1.53   \$0.00%   \$0.00   \$1.53   \$5.60   \$2.26   \$13.00%   \$1.83   \$1.82   \$1.82   \$2.014   \$2.817   \$45.66%   \$5.193   \$3.55   \$5.53   \$0.00%   \$0.00   \$1.72   \$56.74   \$2.26   \$13.00%   \$2.05   \$2.0		2009	\$20.93	45.66%	\$1.44	\$2.64	\$1.21	0.00%	\$0.00	\$1.21	\$47.21	2.26	13.00%		\$1,44	
2011 \$23.57 45.66% \$1.62 \$2.98 \$13.6 0.00% \$0.00 \$1.36 \$55.17 2 \$2.6 13.00% \$1.62 \$1.62 \$2.6 12.00% \$1.72 \$3.16 \$1.44 0.00% \$0.00 \$1.36 \$55.17 2 \$3.16 \$1.44 0.00% \$1.72		2010	\$22.21	45.66%	\$1.52	\$2.80	\$1.28	0.00%	\$0.00	\$1.28	\$50.10	2.26	13.00%		\$1.52	\$1.52
2013 \$26.54		2011	\$23.57	45.66%	\$1.62	\$2.98	\$1.36	0.00%	\$0.00	\$1.36	<b>\$</b> 53.17	2.26	13.00%		\$1.62	
2014 \$28.17 45.66% \$1.93 \$3.56 \$1.02 0.00% \$0.00 \$1.82 \$63.53 \$2.66 13.00% \$2.05 \$2.		2012	\$25.01	45.66%	\$1.72	\$3.16	\$1.44	0.00%	\$0.00	\$1.44	\$56.42	2.26	13.00%		\$1.72	\$1.72
2015 \$29.89 45.66% \$2.05 \$3.77 \$1,72 0.00% \$0.00 \$1.72 \$67.42 2.26 13.00% \$2.05 \$2.0	1	2013	\$26.54	45.66%	\$1.82	\$3.35	\$1.53	0.00%	\$0.00	\$1.53	\$59.87	2.26	13.00%		\$1.82	\$1.82
2015   \$29.89   46.66%   \$2.05   \$3.77   \$1.72   0.00%   \$0.00   \$1.72   \$67.42   2.26   13.00%   \$2.18   \$2.18   \$2.18   \$4.00   \$1.83   0.00%   \$0.00   \$1.94   \$75.52   2.26   13.00%   \$2.31   \$	i	2014	\$28.17	45.66%	\$1.93	\$3.56	\$1.62	0.00%	\$0.00	\$1.62	\$63.53	2.26	13.00%		\$1.93	\$1.93
2016 \$31.72 45.66% \$2.18 \$4.00 \$1.83 0.00% \$0.00 \$1.83 \$71.54 2.26 13.00% \$2.18 \$2.18 2017 \$33.66 45.66% \$2.31 \$4.25 \$1.94 0.00% \$0.00 \$2.06 \$80.56 2.26 13.00% \$2.26 30.00% \$2.45 \$	- 1	2015	\$29.89	45.66%	\$2.05	\$3.77	\$1.72	0.00%	\$0.00	\$1.72	\$67.42	2.26	13.00%		\$2.05	\$2.05
2017   \$33.66   45.66%   \$2.31   \$4.25   \$1.94   0.00%   \$0.00   \$1.94   \$75.92   2.26   13.00%   \$2.31   \$2.31   \$2.31   \$2.31   \$2.91   \$37.90   \$45.66%   \$2.45   \$4.51   \$2.06   0.00%   \$0.00   \$2.18   \$85.49   2.26   13.00%   \$2.45   \$2.45   \$2.60   \$2.76	1	2016	\$31.72	45.66%	\$2.18	\$4.00	\$1.83	0.00%	\$0.00	\$1.83	\$71.54	2.26	13.00%			
2018 \$33.72 45.66% \$2.45 \$4.51 \$2.06 0.00% \$0.00 \$2.06 \$80.56 2.26 13.00% \$2.45 \$2.45 \$2.45 \$2.60 \$2.00 \$40.22 \$45.66% \$2.00 \$4.79 \$2.18 0.00% \$0.00 \$2.20 \$90.72 \$2.60 13.00% \$2.60 \$2.60 \$2.60 \$2.60 \$2.00 \$40.22 \$45.66% \$2.76 \$5.08 \$2.32 0.00% \$0.00 \$2.32 \$90.72 \$2.66 13.00% \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.76 \$2.77 \$10.00% \$2.00 \$2.46 \$2.60 \$2.6		2017	\$33.66	45.66%	\$2.31	\$4.25	\$1.94	0.00%	\$0.00	\$1.94	\$75.92	2.26	13.00%			
2019 \$37.90 \$45.68% \$2.60 \$47.9 \$2.18 0.00% \$0.00 \$2.18 \$85.49 2.26 13.00% \$2.60 \$2.		2018	\$35.72	45.66%	\$2.45	\$4.51	\$2.06	0.00%	\$0.00	\$2.06	\$80.56					
2020 \$40.22 45.66% \$2.76 \$5.08 \$2.32 0.00% \$0.00 \$2.32 \$90.72 2.26 13.00% \$2.76 \$2.76 \$2.76 \$2.76 \$2.27 \$2.27 \$42.68 \$45.66% \$3.27 \$5.39 \$2.46 0.00% \$0.00 \$2.46 \$66.72 \$2.26 13.00% \$3.30 \$2.93		2019	\$37.90	45.66%	\$2.60	\$4.79	\$2.18	0.00%	\$0.00	\$2.18	\$85.49					
2021 \$42.68 45.66% \$2.93 \$5.39 \$2.46 0.00% \$0.00 \$2.46 \$98.27 \$2.26 13.00% \$2.93 \$2.93 \$2.93 \$2.92 \$45.29 \$45.66% \$3.11 \$5.72 \$2.61 0.00% \$0.00 \$2.61 \$102.16 \$2.66 13.00% \$3.11 \$3.	İ	2020	\$40.22	45.66%	\$2.76	\$5.08	\$2.32	0.00%	\$0.00							
2022 \$45.29 45.66% \$3.11 \$5.72 \$2.51 0.00% \$0.00 \$2.61 \$102.16 2.26 13.00% \$3.11 \$3.11 2023 \$48.06 45.66% \$3.30 \$6.07 \$2.77 0.00% \$0.00 \$2.77 \$108.41 2.26 13.00% \$3.30 \$3.30 \$3.30 \$2024 \$51.00 45.66% \$3.50 \$6.44 \$2.94 0.00% \$0.00 \$2.77 \$108.41 2.26 13.00% \$3.30 \$3.30 \$3.30 \$2025 \$54.12 45.66% \$3.71 \$6.83 \$3.12 0.00% \$0.00 \$2.94 \$115.04 2.26 13.00% \$3.30 \$3.50 \$3.50 \$2025 \$54.12 45.66% \$3.71 \$6.83 \$3.12 0.00% \$0.00 \$3.12 \$122.08 2.26 13.00% \$3.71 \$3.71 \$2026 \$57.43 45.66% \$3.94 \$7.25 \$3.31 0.00% \$0.00 \$3.31 \$129.55 2.26 13.00% \$3.94 \$3.94 \$2027 \$60.95 45.66% \$4.18 \$7.69 \$3.51 0.00% \$0.00 \$3.51 \$137.47 2.26 13.00% \$4.18 \$4.18 \$4.18 \$2029 \$68.63 45.66% \$4.41 \$8.17 \$3.73 0.00% \$0.00 \$3.73 \$145.88 2.26 13.00% \$4.44 \$4.44 \$2029 \$68.63 45.66% \$4.47 \$8.17 \$3.73 0.00% \$0.00 \$3.35 \$151.45.80 2.26 13.00% \$4.44 \$4.44 \$2029 \$68.63 45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$3.96 \$154.80 2.26 13.00% \$4.71 \$4.71 \$2030 \$772.83 \$45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$4.20 \$164.27 2.26 13.00% \$5.00 \$5.00 \$2031 \$77.29 \$45.66% \$5.30 \$9.76 \$4.46 0.00% \$0.00 \$4.46 \$174.32 2.26 13.00% \$5.50 \$5.00 \$5.00 \$2031 \$77.29 \$45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.46 \$174.32 2.26 13.00% \$5.50 \$5.50 \$2031 \$77.29 \$45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.47 \$184.99 2.26 13.00% \$5.50 \$5.50 \$2031 \$72.83 \$45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.48 \$174.32 2.26 13.00% \$5.50 \$5.50 \$2031 \$87.03 \$45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$5.00 \$4.48 \$174.32 2.26 13.00% \$5.50 \$5.50 \$2031 \$87.03 \$45.66% \$5.50 \$9.75 \$13.93 \$5.65 0.00% \$0.00 \$5.65 \$221.05 2.26 13.00% \$5.50 \$5.65 \$5.63 \$2033 \$87.03 \$45.66% \$5.75 \$13.93 \$5.65 0.00% \$0.00 \$5.65 \$221.05 2.26 13.00% \$5.57 \$7.57 \$7.57 \$2.038 \$117.11 \$45.66% \$5.75 \$13.93 \$6.65 0.00% \$0.00 \$6.00 \$234.58 2.26 13.00% \$5.00 \$5.00 \$2.00 \$6.72 \$2.00 \$1.00% \$0.00 \$6.00 \$2.24 \$8.93 \$2.26 13.00% \$6.32 \$6.72 \$1.237 \$6.65 0.00% \$0.00 \$6.00 \$2.24 \$8.93 \$2.26 13.00% \$6.72 \$5.97 \$2.00 \$1.00% \$0.00 \$6.00 \$2.24 \$8.93 \$2.26 13.00% \$6.00 \$6.72 \$6.72 \$2.26 \$1.200% \$6.93 \$10.26 \$1.200% \$6.90 \$1.200% \$6.90 \$1.200% \$6.90 \$1.200% \$6.90 \$1.200%		2021	\$42.68	45.66%	\$2.93	\$5.39									-	
2023 \$48.06 45.66% \$3.30 \$6.07 \$2.77 0.00% \$0.00 \$2.77 \$108.41 2.26 13.00% \$3.30 \$3.30 \$3.30 \$2024 \$51.00 45.66% \$3.50 \$6.44 \$2.94 0.00% \$0.00 \$2.94 \$115.04 2.26 13.00% \$3.350 \$3.50 \$3.50 \$2025 \$57.43 45.66% \$3.71 \$6.83 \$3.11 0.00% \$0.00 \$3.31 \$12.512.08 2.26 13.00% \$3.30 \$3.51 \$3.71 \$3.71 \$3.71 \$2026 \$57.43 45.66% \$3.71 \$6.83 \$3.11 0.00% \$0.00 \$3.31 \$12.955 2.26 13.00% \$3.94 \$3.94 \$2027 \$60.95 45.66% \$4.18 \$7.69 \$3.51 0.00% \$0.00 \$3.51 \$137.47 \$2.26 13.00% \$4.18 \$4.18 \$4.18 \$20.94 \$2027 \$60.95 45.66% \$4.18 \$7.69 \$3.51 0.00% \$0.00 \$3.51 \$137.47 \$2.26 13.00% \$4.18 \$4.18 \$4.18 \$20.94 \$		2022	\$45,29	45.66%												
2024 \$51.00 45 66% \$3.50 \$6.44 \$2.94 0.00% \$0.00 \$2.94 \$115.04 2.26 13.00% \$3.50 \$3.50 \$3.50 \$2025 \$54.12 45 66% \$3.71 \$6.83 \$3.12 0.00% \$0.00 \$3.12 \$122.08 2.26 13.00% \$3.71	İ	2023														
2025 \$54.12 45.66% \$3.71 \$6.83 \$3.12 0.00% \$0.00 \$3.12 512208 2.26 13.00% \$3.71 \$3.71 2026 \$57.43 45.66% \$3.94 \$7.25 \$3.31 0.00% \$0.00 \$3.31 \$12.955 2.26 13.00% \$3.94 \$3.94 2027 \$60.95 45.66% \$4.18 \$7.69 \$3.51 0.00% \$0.00 \$3.51 \$137.47 2.26 13.00% \$4.18 \$4.18 2028 \$64.68 45.66% \$4.18 \$7.69 \$3.51 0.00% \$0.00 \$3.51 \$137.47 2.26 13.00% \$4.18 \$4.18 2028 \$66.68 45.66% \$4.44 \$8.17 \$3.73 0.00% \$0.00 \$3.51 \$137.47 2.26 13.00% \$4.44 \$4.44 2029 \$68.63 45.66% \$4.41 \$8.17 \$3.73 0.00% \$0.00 \$3.96 \$154.80 2.26 13.00% \$4.47 \$4.71 2030 \$72.83 45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$3.96 \$154.80 2.26 13.00% \$5.00 \$5.00 \$0.00 \$3.72 83 45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$4.46 \$174.32 2.26 13.00% \$5.00 \$5.00 \$0.0	1	2024	\$51.00													
2026   \$57.43   45.66%   \$3.94   \$7.25   \$3.31   0.00%   \$0.00   \$3.31   \$129.55   2.26   13.00%   \$3.94   \$3.94   \$2027   \$60.95   \$45.66%   \$4.18   \$7.69   \$3.51   0.00%   \$0.00   \$3.51   \$137.47   2.26   13.00%   \$4.18   \$4.1	İ															
2027 \$60.95 45.66% \$4.18 \$7.69 \$3.51 0.00% \$0.00 \$3.51 \$137.47 2.26 13.00% \$4.18 \$4.18 2028 \$64.68 45.66% \$4.44 \$81.17 \$3.73 0.00% \$0.00 \$3.73 \$145.88 2.26 13.00% \$4.44 \$4.44 \$4.44 \$4.44 \$4.2030 \$72.83 45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$4.20 \$164.27 2.26 13.00% \$5.00 \$5.00 \$5.00 \$1.00 \$4.20 \$164.27 \$2.60 13.00% \$5.00 \$5.00 \$5.00 \$1.00 \$4.20 \$164.27 \$2.60 13.00% \$5.00 \$5.00 \$5.00 \$1.00 \$4.20 \$1.20	1	2026	\$57.43	45.66%												
2028 \$64.68 45.66% \$4.44 \$8.17 \$3.73 0.00% \$0.00 \$3.73 \$145.88 2.26 13.00% \$4.44 \$4.44 2029 \$68.63 45.66% \$4.71 \$8.67 \$3.96 0.00% \$0.00 \$3.96 \$154.80 2.26 13.00% \$4.71 \$4.71 \$4.71 2030 \$72.28 45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$4.20 \$164.27 2.26 13.00% \$5.00 \$5.00 \$5.00 \$2031 \$77.29 45.66% \$5.30 \$9.76 \$4.46 0.00% \$0.00 \$4.20 \$164.27 2.26 13.00% \$5.30 \$5.30 \$5.30 \$2032 \$82.01 45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.46 \$174.32 2.26 13.00% \$5.30 \$5.30 \$5.30 \$2032 \$82.01 45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.73 \$184.99 2.26 13.00% \$5.30 \$5.63 \$6.63 \$2033 \$87.03 \$4.66% \$5.97 \$10.99 \$5.02 0.00% \$0.00 \$4.73 \$184.99 2.26 13.00% \$5.97 \$5.97 \$5.97 \$2034 \$92.35 45.66% \$5.67 \$13.93 \$5.52 0.00% \$0.00 \$5.32 \$208.31 2.26 13.00% \$6.34 \$6.34 \$6.34 \$2035 \$98.00 \$45.66% \$5.72 \$12.37 \$5.65 0.00% \$0.00 \$5.65 \$221.05 2.26 13.00% \$6.72 \$6.72 \$6.72 \$2036 \$104.00 \$45.66% \$7.14 \$13.13 \$6.00 0.00% \$0.00 \$5.65 \$221.05 2.26 13.00% \$7.74 \$7.14 \$7.14 \$2037 \$110.36 \$45.66% \$7.57 \$13.93 \$6.36 0.00% \$0.00 \$6.36 \$248.93 2.26 13.00% \$7.57 \$7.57 \$7.57 \$2038 \$117.11 \$45.66% \$8.03 \$14.79 \$6.75 0.00% \$0.00 \$6.75 \$264.15 2.26 13.00% \$8.63 \$8.03 \$8.03 \$2040 \$131.88 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.95 \$9.05 \$2041 \$139.95 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.60 \$9.60 \$9.60 \$9.60 \$131.88 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.50 \$9.60 \$9.60 \$9.60 \$131.89 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.60 \$9.60 \$9.60 \$9.60 \$131.89 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.95 \$9.05 \$9.05 \$10.19 \$18.75 \$8.60 0.00% \$0.00 \$8.00 \$8.00 \$11.60 \$130.0% \$9.60 \$9.60 \$9.60 \$131.80 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$8.00 \$7.60 \$297.46 2.26 13.00% \$9.60 \$9.60 \$9.60 \$9.60 \$131.80 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$8.00 \$8.00 \$7.60 \$297.46 2.26 13.00% \$9.60	}	2027	\$60.95	45.66%	\$4.18	\$7.69	\$3.51	0.00%								
2029 \$88.63 45.66% \$4.71 \$8.67 \$3.96 0.00% \$0.00 \$3.96 \$154.80 2.26 13.00% \$4.71 \$4.71 2030 \$72.83 45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$4.20 \$164.27 2.26 13.00% \$5.00 \$5.00 \$5.00 \$2031 \$77.29 45.66% \$5.00 \$9.76 \$4.46 0.00% \$0.00 \$4.46 \$174.32 2.26 13.00% \$5.00 \$5.00 \$5.00 \$2032 \$82.01 45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.48 \$174.32 2.26 13.00% \$5.00 \$5.66 \$6.63 \$2033 \$87.03 45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.473 \$184.99 2.26 13.00% \$5.66 \$6.63 \$6.63 \$2033 \$87.03 45.66% \$5.97 \$10.99 \$5.02 0.00% \$0.00 \$5.02 \$196.30 2.26 13.00% \$5.97 \$5.97 \$2.00 \$92.35 \$4.66% \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.565 \$228.83 2.26 13.00% \$6.34 \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.65 \$228.83 2.26 13.00% \$6.34 \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.65 \$228.83 2.26 13.00% \$6.34 \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.65 \$228.83 2.26 13.00% \$6.34 \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.65 \$228.83 2.26 13.00% \$6.72 \$6.72 \$2.90 \$104.00 \$45.66% \$7.14 \$13.13 \$6.00 0.00% \$0.00 \$6.00 \$234.58 2.26 13.00% \$7.14 \$7.14 \$7.14 \$2.037 \$110.36 \$45.66% \$7.75 \$13.93 \$6.36 0.00% \$0.00 \$6.36 \$248.93 2.26 13.00% \$7.57 \$7.57 \$7.57 \$2.038 \$117.11 \$45.66% \$8.03 \$14.79 \$6.75 0.00% \$0.00 \$6.75 \$264.15 2.26 13.00% \$8.03 \$8.03 \$2.00 \$113.88 \$45.66% \$8.53 \$15.69 \$7.16 0.00% \$0.00 \$7.16 \$220.31 2.26 13.00% \$8.63 \$8.63 \$2.00 \$131.88 \$45.66% \$9.05 \$15.65 \$7.60 0.00% \$0.00 \$7.16 \$220.31 2.26 13.00% \$8.63 \$8.53 \$2.00 \$131.89 \$45.66% \$9.05 \$15.65 \$7.60 0.00% \$0.00 \$7.16 \$220.31 2.26 13.00% \$9.60 \$9.60 \$9.60 \$9.60 \$131.89 \$45.66% \$9.05 \$15.65 \$7.60 0.00% \$0.00 \$7.80 \$297.46 2.26 13.00% \$9.60 \$9.60 \$9.60 \$9.60 \$131.89 \$45.66% \$9.05 \$15.65 \$7.60 0.00% \$0.00 \$7.80 \$297.46 2.26 13.00% \$9.60	1	2028	\$64.68	45.66%	\$4.44	\$8.17	\$3.73									
2030 \$72.83 45.66% \$5.00 \$9.20 \$4.20 0.00% \$0.00 \$4.20 \$164.27 2.26 13.00% \$5.00 \$5.00 \$5.00 \$2.01 \$77.29 45.66% \$5.30 \$9.76 \$4.46 0.00% \$0.00 \$4.46 \$174.32 2.26 13.00% \$5.00 \$5.03 \$5.00 \$2.03 \$87.03 45.66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.73 \$184.99 2.26 13.00% \$5.63 \$5.63 \$2.03 \$87.03 45.66% \$5.97 \$10.99 \$5.02 0.00% \$0.00 \$5.02 \$198.30 2.26 13.00% \$5.97 \$5.97 \$2.034 \$92.35 45.66% \$5.34 \$11.66 \$5.32 0.00% \$0.00 \$5.32 \$208.31 2.26 13.00% \$6.34 \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.50 \$2.00 \$1.00	1	2029	\$68.63	45.66%	\$4.71	\$8.67										
2031 \$77.29 45 66% \$5.30 \$9.76 \$4.46 0.00% \$0.00 \$4.46 \$174.32 2.26 13.00% \$5.30 \$5.30 \$2032 \$82.01 45 66% \$5.63 \$10.35 \$4.73 0.00% \$0.00 \$4.73 \$184.99 2.26 13.00% \$5.63 \$5.63 \$6.33 \$2033 \$87.03 45.66% \$5.97 \$10.99 \$5.02 0.00% \$0.00 \$5.02 \$196.30 2.26 13.00% \$5.67 \$5.97 \$2034 \$92.35 45.66% \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.532 \$208.31 2.26 13.00% \$6.34 \$6.34 \$2035 \$98.00 \$45.66% \$7.97 \$10.99 \$5.02 0.00% \$0.00 \$5.532 \$208.31 2.26 13.00% \$6.34 \$6.34 \$2035 \$98.00 \$45.66% \$7.97 \$10.99 \$5.00 \$0.00 \$5.505 \$20.00% \$0.00 \$5.505 \$208.31 \$2.66 13.00% \$6.34 \$6.34 \$20.35 \$98.00 \$45.66% \$7.14 \$13.13 \$6.00 0.00% \$0.00 \$5.65 \$221.05 \$2.26 13.00% \$6.72 \$6.72 \$6.72 \$6.72 \$10.30 \$110.36 \$45.66% \$7.14 \$13.13 \$6.00 0.00% \$0.00 \$6.00 \$234.58 \$2.26 13.00% \$7.14 \$7.14 \$2037 \$110.36 \$45.66% \$7.57 \$13.93 \$6.36 0.00% \$0.00 \$6.00 \$234.58 \$2.26 13.00% \$7.57 \$7.57 \$7.57 \$2038 \$117.11 \$45.66% \$8.03 \$14.79 \$6.75 0.00% \$0.00 \$6.75 \$264.15 \$2.26 13.00% \$8.03 \$8.03 \$8.03 \$2039 \$124.28 \$45.66% \$8.03 \$15.69 \$7.16 0.00% \$0.00 \$7.16 \$280.31 \$2.26 13.00% \$8.53 \$8.53 \$8.53 \$2040 \$131.88 \$45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 \$2.26 13.00% \$9.60 \$9.6	i	2030	\$72.83	45.66%	\$5.00	\$9.20										
2032   \$82.01   45.66%   \$5.63   \$10.35   \$4.73   0.00%   \$0.00   \$4.73   \$184.99   2.26   13.00%   \$5.63   \$5.63   \$5.63   \$5.63   \$5.63   \$5.63   \$5.63   \$5.63   \$5.63   \$5.63   \$5.63   \$5.02   0.00%   \$0.00   \$5.02   \$196.30   \$2.61   13.00%   \$5.63   \$5.63   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.97   \$5.98   \$0.00   \$5.65   \$221.05   2.26   13.00%   \$6.34   \$6.	1	2031	\$77.29	45.66%	\$5,30						-					
2033   \$87.03   45.66%   \$5.97   \$10.99   \$5.02   0.00%   \$0.00   \$5.02   \$196.30   2.26   13.00%   \$5.97   \$5.97   \$5.97   \$2034   \$92.35   45.66%   \$5.34   \$11.66   \$5.32   0.00%   \$0.00   \$5.32   \$208.31   2.26   13.00%   \$6.34   \$6.34   \$6.34   \$6.34   \$6.34   \$11.66   \$5.32   0.00%   \$0.00   \$5.65   \$221.05   2.26   13.00%   \$6.34	1	2032	\$82.01													
Second 2034 \$92.35 45.66% \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.32 \$208.31 2.26 13.00% \$6.34 \$6.34 \$6.34 \$6.34 \$6.34 \$6.34 \$11.66 \$5.32 0.00% \$0.00 \$5.65 \$221.05 2.26 13.00% \$6.72 \$6.72 \$6.72 \$12.37 \$5.65 0.00% \$0.00 \$5.65 \$221.05 2.26 13.00% \$7.14 \$7.14 \$7.14 \$2037 \$110.36 45.66% \$7.14 \$13.13 \$6.00 0.00% \$0.00 \$6.00 \$234.68 2.26 13.00% \$7.14 \$7.14 \$7.14 \$2037 \$110.36 45.66% \$7.57 \$13.93 \$6.36 0.00% \$0.00 \$6.36 \$248.93 2.26 13.00% \$7.57 \$7.57 \$2038 \$117.11 45.66% \$8.03 \$14.79 \$6.75 0.00% \$0.00 \$6.75 \$24.15 2.26 13.00% \$8.03 \$8.03 \$8.03 \$124.28 45.66% \$8.53 \$15.69 \$7.16 0.00% \$0.00 \$7.16 \$280.31 2.26 13.00% \$8.53 \$8.53 \$8.53 \$2040 \$131.88 45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.16 \$280.31 2.26 13.00% \$8.00 \$8.00 \$9	į	2033	\$87.03	45.66%	\$5.97				-							
Second Stage         2035         \$98.00         45.66%         \$6.72         \$12.37         \$5.65         0.00%         \$0.00         \$5.65         \$221.05         2.26         13.00%         \$6.72         \$6.72           Stage         2036         \$104.00         45.66%         \$7.14         \$13.13         \$6.00         0.00%         \$0.00         \$6.00         \$234.58         2.26         13.00%         \$7.14         \$7.14           2037         \$110.36         45.66%         \$8.75         \$13.93         \$6.36         0.00%         \$0.00         \$6.36         \$248.93         2.26         13.00%         \$7.57         \$7.57           2038         \$117.11         45.66%         \$8.03         \$14.79         \$6.75         0.00%         \$0.00         \$6.75         \$264.15         2.26         13.00%         \$8.63         \$8.03           2039         \$124.28         45.66%         \$8.53         \$15.69         \$7.16         0.00%         \$0.00         \$7.16         \$280.31         2.26         13.00%         \$8.53         \$8.53           2040         \$131.88         45.66%         \$9.05         \$16.65         \$7.60         0.00%         \$0.00         \$7.60         \$297.46         2.26 </td <td>1</td> <td>2034</td> <td></td>	1	2034														
Stage	Second															
2037 \$110.36 45.66% \$7.57 \$13.93 \$6.36 0.00% \$0.00 \$6.36 \$248.93 2.26 13.00% \$7.57 \$7.57 2038 \$117.11 45.66% \$8.03 \$14.79 \$6.75 0.00% \$0.00 \$6.75 \$264.15 2.26 13.00% \$8.03 \$8.03 \$8.03 2039 \$124.28 45.66% \$8.53 \$15.69 \$7.16 0.00% \$0.00 \$7.16 \$280.31 2.26 13.00% \$8.53 \$8.53 \$8.53 2040 \$131.89 45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.05 \$9.05 2041 \$139.95 45.66% \$9.05 \$17.67 \$8.07 0.00% \$0.00 \$8.00 \$7.56 \$297.46 2.26 13.00% \$9.05 \$9.05 \$9.05 2041 \$139.95 45.66% \$9.05 \$17.67 \$8.07 0.00% \$0.00 \$8.56 \$334.97 \$2.26 13.00% \$9.05 \$9.60																
2038   \$117.11   45.66%   \$8.03   \$14.79   \$6.75   0.00%   \$0.00   \$6.75   \$264.15   2.26   13.00%   \$8.03   \$8.03   \$8.03   \$2039   \$124.28   45.66%   \$8.53   \$15.69   \$7.16   0.00%   \$0.00   \$7.16   \$280.31   2.26   13.00%   \$8.53   \$8.53   \$8.53   \$2040   \$131.88   45.66%   \$9.05   \$16.65   \$7.60   0.00%   \$0.00   \$7.60   \$297.46   2.26   13.00%   \$9.05   \$9.					•										-	
2039 \$124.28 45.66% \$8.53 \$15.69 \$7.16 0.00% \$0.00 \$7.16 \$297.46 2.26 13.00% \$8.53 \$8.53 \$8.53 \$2040 \$131.88 45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.05 \$9.05 \$2041 \$139.95 45.66% \$9.80 \$17.67 \$8.07 0.00% \$0.00 \$8.07 \$315.66 2.26 13.00% \$9.60 \$9.60 \$9.60 \$9.60 \$10.19 \$18.75 \$8.56 0.00% \$0.00 \$8.56 \$334.97 \$2.26 13.00% \$334.97 \$10.19 \$345.15 \$10.22%	1														-	
2040 \$131.88 45.66% \$9.05 \$16.65 \$7.60 0.00% \$0.00 \$7.60 \$297.46 2.26 13.00% \$9.05 \$	j						•									
2041 \$139.95 45.66% \$9.60 \$17.67 \$8.07 0.00% \$0.00 \$8.07 \$315.66 2.26 13.00% \$9.60 \$9.60 2042 \$148.51 45.66% \$10.19 \$18.75 \$8.56 0.00% \$0.00 \$8.56 \$334.97 2.26 13.00% \$334.97 \$10.19 \$345.15 Internal Rate of Return 10.22%	l														-	
2042 \$148.51 45.66% \$10.19 \$18.75 \$8.56 0.00% \$0.00 \$8.56 \$334.97 2.26 13.00% \$34.97 \$10.19 \$345.15 [Internal Rate of Return] 10.22%	ŀ															
	1															
	l	2042	a148.51	45.66%	<b>\$</b> 10.19	\$18.75	\$8.56	0.00%	\$0.00	\$8.56	\$334.97	2.26				
	Source:												[internal F	ate of Retu	m	10.22%

JAR Exibit 3 Schedue 6, Page 2

KBU	<i>-</i> 5
FULL	DCF METHOD
Base	d on Market Price on

			Based o	n Market f	Price on	8/31/2002									
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
	Year	Year End	Retentio	: Dividend	Earnings	Retained		Increme		Market	Mkt to	Expect.	Cash Fi.	Cash Fl.	
		Book	Rate		Per Share	Earnings		to book		Price	Book	Ret. on	from	from	Cash
						Per Share	Rate	from	to Book			Equity	Stock	Div.	Flow
								Ext. Fin.				Lquity	Trans.	DIV.	FIOW
		[A]	(B)	[C]	[D]	[E]	[F]	[G]	(H)	[1]	[7]	[K]	[L]	[M]	[N]
							٠.	• • •	E - 7	M/B Change		(14)	[L]	fivil	[IN]
	2002	\$11.68	50.15%	\$1.13	\$2.27	\$1,14				\$37.70	3.23		(\$37.70)		(807.70)
	2003	\$12.93	52.93%	\$1.18	\$2.50	\$1.32			\$1.32	\$41.73	3.23		(\$37.70)		(\$37.70)
First	2004	\$14.46	56.79%	\$1.21	\$2.80	\$1.59			\$1.59	\$46.66	3.23			\$1.18	\$1.18
Stage	2005	\$15.99	59.89%	\$1.24	\$3.10	\$1.86			\$1.86	\$51.59				\$1.21	\$1.21
	2006	\$17.52	58.82%	\$1.28	\$3.10	\$1.82			\$1.82	\$56.52	3.23 3.23			\$1.24	\$1.24
	2007	\$18.58	36,84%	\$1.82	\$2.89	\$1.06	0.00%	\$0.00				18.50%		\$1.28	<b>\$</b> 1.28
	2008	\$19.71	36.84%	\$1.93	\$3.06	\$1.13	0.00%		\$1.06	\$59.95	3.23	16.00%		\$1.82	\$1.82
	2009	\$20.91	36.84%	\$2.05	\$3.25	\$1.13			\$1.13	\$63.59	3.23	16.00%		\$1.93	\$1.93
	2010	\$22.18	36.84%	\$2.18	\$3.45		0.00%		\$1.20	\$67.46	3.23	16.00%		\$2.05	\$2.05
	2011	\$23.52	36.84%	\$2.31	\$3.66	\$1.27	0.00%	\$0.00	\$1.27	\$71.55	3.23	16.00%		\$2.18	\$2.18
	2012	\$24.95	36.84%	\$2.45	\$3.88	\$1.35	0.00%	\$0.00	\$1.35	\$75.90	3.23	16.00%		\$2.31	\$2.31
	2013	\$26.47	36.84%	\$2.60	\$3.00 \$4.11	\$1.43	0.00%	\$0.00	\$1.43	\$80.51	3.23	16.00%		\$2.45	\$2.45
	2014	\$28.07	36.84%	\$2.76	\$4.36	\$1.52	0.00%	\$0.00	\$1.52	\$85.40	3.23	16.00%		\$2.60	\$2.60
	2015	\$29.78	36.84%	\$2.92	\$4.63	\$1.61	0.00%	\$0.00	\$1.61	\$90.58	3.23	16.00%		\$2.76	\$2.76
	2016	\$31.59	36.84%	\$3.10	\$4.91	\$1.71 \$1.81	0.00%	\$0.00	\$1.71	\$96.09	3.23	16.00%		\$2.92	\$2.92
	2017	\$33.51	36.84%	\$3.29	\$5.21	\$1.92	0.00%	\$0.00	\$1.81	\$101.92	3.23	16.00%		\$3.10	\$3.10
	2018	\$35.54	36.84%	\$3.49	\$5.52	\$2.03	0.00%	\$0.00	\$1.92	\$108.11	3.23	16.00%		\$3.29	\$3.29
- 1	2019	\$37.70	36.84%	\$3.70	\$5.86	\$2.16	0.00%	\$0.00 \$0.00	\$2.03	\$114.68	3.23	16.00%		\$3.49	\$3.49
	2020	\$39.99	36.84%	\$3.93	\$6.22	\$2.29	0.00%	\$0.00	\$2.16 \$2.29	\$121.64	3.23	16.00%		\$3.70	\$3.70
j	2021	\$42.42	36.84%	\$4.16	\$6.59	\$2.43	0.00%	\$0.00	\$2.43	\$129.03 \$136.87	3.23	16.00%		\$3.93	\$3.93
	2022	\$44.99	36.84%	\$4.42	\$6.99	\$2.58	0.00%	\$0.00	\$2.58		3.23	16.00%		\$4.16	\$4.16
	2023	\$47.73	36.84%	\$4.69	\$7.42	\$2.73	0.00%	\$0.00	\$2.73	\$145.18	3.23	16.00%		\$4.42	\$4.42
- 1	2024	\$50.63	36.84%	\$4.97	\$7.87	\$2.90	0.00%	\$0.00	\$2.73	\$154.00	3.23	16.00%		\$4.69	\$4.69
	2025	<b>\$</b> 53.70	36.84%	\$5.27	\$8.35	\$3.07	0.00%	\$0.00	\$3.07	\$163.35	3.23	16.00%		\$4.97	\$4.97
	2026	\$56.96	36.84%	\$5.59	\$8.85	\$3.26	0.00%	\$0.00	\$3.26	\$173.27	3.23	16.00%		\$5.27	\$5.27
- 1	2027	\$60.42	36.84%	\$5.93	\$9.39	\$3.46	0.00%	\$0.00		\$183.79	3.23	16.00%		\$5.59	<b>\$</b> 5. <b>59</b>
1	2028	\$64.09	36.84%	\$6.29	\$9.96	\$3.67	0.00%	\$0.00	\$3.46	\$194.96	3.23	16.00%		\$5.93	\$5.93
	2029	\$67.98	36.84%	\$6.67	\$10.57	\$3.89	0.00%	\$0.00	\$3.67	\$206.80	3.23	16.00%		\$6.29	\$6.29
	2030	\$72.11	36.84%	\$7.08	\$11.21	\$4.13	0.00%	\$0.00	\$3.89	\$219.36	3.23	16.00%		\$6.67	\$6.67
	2031	\$76.49	36.84%	\$7.51	\$11.89	\$4.38	0.00%	\$0.00	\$4.13	\$232.68	3.23	16.00%		\$7.08	\$7.08
	2032	\$81,14	36.84%	\$7.96	\$12.61	\$4.65	0.00%	\$0.00	\$4.38	\$246.81	3.23	16.00%		\$7.51	\$7.51
1	2033	\$86,07	36.84%	\$8.45	\$13.38	\$4.93	0.00%	\$0.00	\$4.65	\$261.80	3.23	16.00%		\$7.96	\$7.96
1	2034	\$91.29	36.84%	\$8.96	\$14.19	\$5.23	0.00%	\$0.00	\$4.93	\$277.70	3.23	16.00%		\$8.45	\$8.45
Second	2035	\$96.84	36.84%	\$9.51	\$15.05	\$5.54	0.00%	\$0.00	\$5.23 \$5.54	\$294.57	3.23	16.00%		\$8.96	\$8.96
Stage	2036	\$102.72	36.84%	\$10.08	\$15.96	\$5.88	0.00%	\$0.00	\$5.88	\$312.46	3.23	16.00%		\$9.51	\$9.51
	2037	\$108.96	36.84%	\$10.70	\$16.93	\$6.24	0.00%	\$0.00	\$6.24	\$331.43 \$351.56	3.23	16.00%		\$10.08	\$10.08
	2038	\$115.58	36.84%	\$11.35	\$17.96	\$6.62	0.00%	\$0.00	\$6.62		3.23	16.00%		\$10.70	\$10.70
l	2039	\$122.59	36.84%	\$12.03	\$19.05	\$7.02	0.00%	\$0.00	\$7.02	\$372.92	3.23	16.00%		\$11.35	\$11.35
	2040	\$130.04	36.84%	\$12.77	\$20.21	\$7.45	0.00%	\$0.00	\$7.02 \$7.45	\$395.56	3.23	16.00%		\$12.03	\$12.03
İ	2041	\$137.94	36.84%	\$13.54	\$21.44	\$7.90	0.00%	\$0.00		\$419.59	3.23	16.00%		\$12.77	\$12.77
	2042	\$146.32	36.84%	\$14.36	\$22.74	\$8.38	0.00%		\$7.90	\$445.07	3.23	16.00%	_	\$13.54	\$13.54
-	-			2	WCC., 7	φυ.30	0.00%	\$0.00	\$8.38	\$472.10	-	16.00%	\$472.10	\$14.36	\$486.47
Source:											Ŀ	Internal Ra	ate of Return		9.97%
	Tiret Cte.														

[A] First Stage is average from Value Line. Second stage is prior years' book plus value from Col. [8]

[B] First Stage is (Col. [4]-Col. [3]/Col. [4]). For second sage, see result on Schedule 5, Page 1

[C] First Stage is from Value Line. Second stage is Col. [4] x (1-Col. [2])

[D] First Stage is from Value line. Second stage is col. [4] x (1-Col. [2])

[E] Col. [4] - Col. [3]

[J] JAR Exibit 3

[G] Col. [6] + Col. [7]

[G] Col. [6] + Col. [7]

[L] - Col. [9] for year of purchase, + Col. [9] for year of sale

[M] Col. [1] x Col. [10]

[N] Col. [12] + Col. [13]

JAR Exibit 3 Schedule 6, Page 3

### RBOCS VALUE LINE'S EARNINGS PROJECTIONS

## Earnings Per Share Forecast by Value Line

	2002	2003	2004	2005	2006
Bell South	\$1.45	\$2.00	\$2.38	\$2.75	\$2.75
SBC Communications	\$2.30	\$2.40	\$2.63	\$2.85	\$2.85
Verizon	\$3.05	\$3.10	\$3.40	\$3.70	\$3.70
	\$2.27	\$2.50	\$2.80	\$3.10	\$3.10

Source: Most Current Value Line at Time of Prep: 2002 and 2003.

The value for 2005 & 2006 is simply the number from value line's 2005-2007 range. Values for 2004 were interpalated from the 2003 and the 2005-2007 range.

JAR Exibit 3
RBOCS Schedule 6, Page 4
VALUE LINE'S BOOK VALUE PROJECTIONS

### Book Value Per Share Forecast by Value Line

	2002	2003	2004	2005	2006
Bell South	\$10.90	\$12.10	\$13.62	\$15.13	\$16.65
SBC Communications	\$10.50	\$11.35	\$12.47	\$13.58	\$14.70
Verizon	\$13.65	\$15.35	\$17.30	\$19.25	\$21.20
AVERAGE	\$11.68	\$12.93	\$14.46	\$15.99	\$17.52
Comment March Comment March 1997 1997					

Source: Most Current Value Line at Time of Prep: 2002 and 2003.

The value for 2005 & 2006 is simply the number from value line's 2005-2007 range.

Values for 2004 were interpalated from the 2003 and the 2005-2007 range

			COMPANIES Dividends Per			AR Exhibit 3 chedule 6, Page 5
	2002	2003	2004	2005		ompound Annual
AMOUNT:			ue Line imate		_	rowth from 2000 2006
Bell South	\$0.78	\$0.82	\$0.86	\$0.90	\$0.94	3.80%
SBC Communications Verizon	\$1.07 \$1.54	\$1.11 \$1.60	\$1.15	\$1.19	\$1.23	2.83%
Average	\$1.13	\$1.18	\$1.62 \$1.21	\$1.64 \$1.24	\$1.66 \$1.28	1.51% 2.71%
		4.13%	2.83%	2.75%	2.68%	

Source: Most Current Value Line at Time of Prep: 2002 and 2003.

The value for 2005 & 2006 is simply the number from value line's 2005-2007 range.

Values for 2004 were interpalated from the 2003 and the 2005-2007 range

	2003	2004	2005	2006
PERCENT CHANGE FROM PRIOR YEAR:				
Bell South	5.13%	4.88%	4.65%	4.44%
SBC Communications	3.74%	3.60%	3.48%	3.36%
Verizon	3.90%	1.25%	1.23%	1.22%
AVERAGE	4.25%	3.24%	3.12%	3.01%

Source: Value Line

RBOCS OVERALL CAPITAL STRUCTURE 6/30/2002

JAR Exibit 3 Schedule 7

					Average	45.0%
Verizon	61,608	0	28,642 90,250	68.3%	%0:0	31.7%
SBC	25,799	0	31,728	44.8%	%0:0	55.2%
BellSouth	20,125	0	18,597 38,722	52.0%	0.0%	48.0%
	Total Debt	Total Preferred Stock	Total Common Stock	Debt	Preferred Equity	Common Equity
tu load				Percent		

Source: 2000 10K reports to U.S. Securities and Exchange Commission as obtained from the SEC Edgar website: sec.edgar.gov

# COMPARATIVE COMPANIES EXTERNAL FINANCING RATE (Millions of Shares)

RBOC	Common Stock 2001	Outstanding 2005-07	Compound Annual
Beltsouth	1873.30	1830.00	-0.47%
SBC Verizon	3354.20 2712.20	3340.00 2690.00 Average Median Round to	-0.08% -0.16% -0.24% -0.16% 0.00%
	<b>200</b> 1	2005-07	
ELECTRIC COMPANIES SELECTED BY PACIFICORP			
Ameren	138.05	144.20	0.88%
Progress Energy (CP&L+Florida Progress)	218.73	224.60	0.53%
Cleco Corporation	44.96	47.00	0.89%
Con Edison DPL Inc.	212.15	219.60	0.69%
DQE Inc.	119,10	119.00	-0.02%
DTE Energy Co.	55.91 161.13	76.50	6.47%
Energy East (NYSEG, CMP, CT Natural and		170.00 146.00	1.08% 4.58%
FPL Group, Inc.	175.85	182.20	0.71%
Idacorp, Inc.	37.63	39.00	0.72%
IPALCO Enterprises			
Nstar (Boston Edison)	53.03	49.00	-1.57%
Pinnacle West	84.83	84.90	0.02%
Potomac Electric Power	107.22	105.00	-0.42%
Puget Energy, Inc.	87.02	93.25	1.39%
UIL Holdings	14.12	15.00	1.22%
	108.43	114.35	
		Average	1.14%
		Median Round to	0.72%
GAS COMPANIES		110011010	1.0078
Occupate National O			
Cascade Natural Gas Nicor	11.05	12.00	1.66%
N.W. Natural Gas	44.40	43.00	-0.64%
Peoples Energy	25.23	25.50	0.21%
Piedmont Natural Gas	35.40 32.46	32.00	-2.00%
South Jersey Industries	11.86	35.00 13.50	1.52% 2.62%
Southwest Gas	32.49	33.00	0.31%
WGL Holdings	48.54	48.50	-0.02%
	30.18	30.31	
	Average		0.46%
	Median		0.26%
WATER COMPANIES	Round to		0.50%
American States Water Co.	15.12	16.80	2.67%
American Water Works	100.01	104.00	0.98%
California Water Service		104.00 19.00	0. <del>9</del> 8% 5.77%
	100.01		
California Water Service	100.01 15.18 68.39	19.00 72.00	5.77%
California Water Service	100.01 15.18	19.00 72.00 52.95	5.77% 1.29%
California Water Service	100.01 15.18 68.39	19.00 72.00 52.95 Average	5.77% 1.29% ————————————————————————————————————
California Water Service	100.01 15.18 68.39	19.00 72.00 52.95	5.77% 1.29%

Source:

Value Line

Note: Shares outstanding forecasts are from most current Value Line issues.

reports. This was necessary because the Value Line report for the Eastern electric utilities is the only one that provided forecasting updates that carry forecasts through 2004-2006.

Updating only the Eastern electric companies would have resulted in a data incompatability.

# COST OF EQUITY INDICATED BY

INFLATION RISK PREMIUM METHOD  1 Interest rate on 30 year treasury bonds  2 Interest rate on inflation indexed 30 year treasury bonds  3 Difference  4 Round to  5 Historic Return on Common Stocks  6 Inflation expectation  7 Inflation Risk Premium Indicated Cost of Equity for Company of Average Risk  RISK ADJUSTMENT  8 Yield on 90 day treasury bills  9 Equity premium over 90 day treasury bills  10 Beta of RBOC	asury bonds  1 Stocks  1 Stocks  1 Stocks  1 Stocks  1 Stocks  1 Stocks  2 10%  3 70%  4 98%  4 1098  6 10 10 10 10 10 10 10 10 10 10 10 10 10		4.69% [A]  2.62% [B]  2.07% Line 1 minus Line 2  2.10%  to 7.20% [C]  to 9.30%  1.62% [A]  5.58% Line 5 minus line 8  0.85 Schedule 4, Page 3
11 Risk adjusted equity premium	4.23%	ł	4.74% Line 9 times Line 10
12 Reduction in equity premium applicable to electric companies	0.75%	ļ	0.84% Line 9 minus line 11
13 Risk premium applicable to telephone companies ₌ Mid-point	7.95%	8.21%	8.46% Line 7 minus line 12

- Sources:
  [A] Bondsonline.com, 8/27/02
  [B] New York Times, Friday, September 27, 2002
  [C] Page 12 of Stocks for the Long Run, Second Edition by Jeremy J. Siegel, 1998, McGraw Hill.

JAR Exibit 3

JAK Exibit 3 Schedule 10, Page 1 OR COMMON STOCK:	Average Risk Risk Premium Applicable to RBOC Beta of Adjustment 0.92 [A]	Applicable Risk Premium 4.00% [C] -0.33% [E] 4.78% Applicable Risk Premium 8.78% [E] -0.33% [E] 8.45%	spi	corporate bonds 4.78% [D] 4.78% (E) 1.8% Premium 3.51% [C] -0.29% [E] 3.22% 8.29% (E) 8.29% (E) 1.00%	em U.S Treasury Bonds	Applicable Risk Premium 3.59% [B] 3.69% [B] 3.69% Applicable Risk Premium 7.59% [C] -0.32% [E] 3.57% 7.59%	Bills	Interest on 90 day U.S. Treasury Bills 1.62% [B] 1.62% Applicable Risk Premium 5.33% [C] -0.44% [E] 4.89% 6.95%
RISK PREMIUM/CAPM METHOD COST OF EC EQUITY FOR COMMON STOCK:	Based on Long-lerm Treasury Bonds	Interest rate on 20 year tr Applicable Risk Premium	Based on Corporate Bonds	Interest on corporate bonds Applicable Risk Premium	Based on Intermediate Tern U.S Treasury Bonds	Intereset on 10 year U.S. Applicable Risk Premium	Based on U.S. Treasury Bills	Interest on 90 day U.S. T. Applicable Risk Premium

1	
,	Number in 1st column x (1-beta) Average of 4.23% from Schedule 9
RISK	Number in 1s Average of from
4VERAGE 6.95% 8.78% 7.90%	
MTM	匣
SUMMARY OF INDICATED RISK PREMIUM FOR EQUITY WITH AVERAGE RISK  Lowest 6.95% Highest 8.78% Average 7.90%	Schedule 4, Page 3 Bondsonline.com:U.S. Treasuries, 20 yr 8/27/2002 Schedule JAR 10, Page 2 BondsOnline, 9/27/02 AAA rated 20 year corporate bond

Sources:

>

5.58%

and

6.51% 8.45% 7.55%

# RISK PREMIUM BASED UPON ANALYSIS OF HISTORIC RETURNS

Schedule JAR 10, Page 2

Compound annual returns from 1926 through 1999;

11.35%	5.61%	5.12%	5.22%	3.79%	3.07%
Large Common Stocks	Corporate Bonds	Long-term U.S. Treasury Bonds	Intermediate Term U.S. Treasury Bonds	U.S. Treasury Bills	Inflation

Average diference from Long-term U.S. Treasury Bonds:

Large Common Stocks	6.23%
Corporate Bonds	0.49%
Long-term U.S. Treasury Bonds	0.00%
Intermediate Term U.S. Treasury Bonds	0.10%
U.S. Treasury Bills	-1.33%
Lefation	.2 05%

# Common Stock Risk Premium Consistent With Current Market Environment:

Long-term U.S. Treasury Bonds Corporate Bonds Intermediate Term U.S. Treasury Bonds U.S. Treasury Bills Inflation	4.00% or less. 3.51% or less. 3.90% or less. 5.33% or less. 6.05% or less.	See graph on Schedule JAR 11, P. 3. Risk premium on large common stocks minus average differnce from corporate bonds per above table. Risk premium on large common stocks minus average differnce from corporate bonds per above table. Risk premium on large common stocks minus average differnce from corporate bonds per above table. Risk premium on large common stocks minus average differnce from corporate bonds per above table. Risk premium on large common stocks minus average differnce from corporate bonds per above table.
		the state of the s

# **JAR Exhibit 4**

# **Verizon Communications Balance Sheet**





# Financials - Verizon Communications (NYSE:VZ)

As of 7-5

Enter symbol: symbol lookup

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# Verizon Communications Quarterly Balance Sheet

Display An

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Income Staten	nent Balance Sh	eet Cash Flow S	tatement		ADV
					Wh
Period Ending	Jun 30, 2002	Mar 31, 2002	Dec 31, 2001	Sep 30, 2001	
Current Assets					a.
Cash And Cash Equivalents	\$2,962,000,000	\$1,015,000,000	\$979,000,000	\$1,365,000,000	
Short Term Investments	\$769,000,000	\$1,364,000,000	\$1,991,000,000	\$248,000,000	
Net Receivables	\$13,068,000,000	\$15,412,000,000	\$14,254,000,000	\$13,726,000,000	
Inventory	\$3,166,000,000	\$3,002,000,000	\$3,167,000,000	\$3,746,000,000	
Other Current Assets	\$3,176,000,000	\$3,379,000,000	\$2,796,000,000	\$2,747,000,000	
Total Current Assets	\$23,141,000,000	\$24,172,000,000	\$23,187,000,000	\$21,832,000,000	
Long Term Asse	ets				
Long Term Investments	\$5,881,000,000	\$7,615,000,000	\$10,202,000,000	\$11,284,000,000	
Property Plant And Equipment	\$74,384,000,000	\$74,321,000,000	\$74,419,000,000	\$72,897,000,000	$\mathbf{Y}_{\ell}$
Goodwill	N/A	N/A	N/A	N/A	
Intangible Assets	\$45,231,000,000	\$45,127,000,000	\$44,262,000,000	\$44,080,000,000	
Accumulated Amortization	N/A	N/A	N/A	N/A	
Other Assets	\$19,656,000,000	\$20,090,000,000	\$18,725,000,000	\$19,410,000,000	
Deferred Long Term Asset Charges	N/A	N/A	N/A	N/A	
Total Assets	\$168,293,000,000	\$171,325,000,000	\$170,795,000,000	\$169,503,000,000	

Current Liabilitie	s			
Accounts Payable	\$13,130,000,000	\$13,120,000,000	\$13,947,000,000	\$11,945,000,000
Short Term And Current Long Term Debt	\$16,969,000,000	\$16,344,000,000	\$18,669,000,000	\$18,847,000,000
Other Current Liabilities	\$5,581,000,000	\$5,646,000,000	\$5,404,000,000	\$5,450,000,000
Total Current Liabilities	\$35,680,000,000	\$35,110,000,000	\$38,020,000,000	\$36,242,000,000
Long Term Debt	\$44,639,000,000	\$46,580,000,000	\$45,657,000,000	\$45,043,000,000
Other Liabilities	\$17,684,000,000	\$17,727,000,000	\$15,887,000,000	\$15,354,000,000
Deferred Long Term Liability Charges	\$18,824,000,000	\$18,375,000,000	\$16,543,000,000	\$16,129,000,000
Minority Interest	\$22,824,000,000	\$22,526,000,000	\$22,149,000,000	\$21,899,000,000
Negative	N/A	N/A	NT/A	NT/A
Goodwill	IV/A	N/A	N/A	N/A
Goodwill  Total  Liabilities	\$139,651,000,000	\$140,318,000,000		N/A \$134,667,000,000
Total	\$139,651,000,000			
Total Liabilities	\$139,651,000,000			
Total Liabilities Stock Holders Ed Misc Stocks Options	<b>\$139,651,000,000</b> quity	\$140,318,000,000	\$138,256,000,000	\$134,667,000,000
Total Liabilities Stock Holders Ed Misc Stocks Options Warrants Redeemable	<b>\$139,651,000,000</b> quity N/A	\$140,318,000,000 N/A	<b>\$138,256,000,000</b> N/A	<b>\$134,667,000,000</b> N/A
Total Liabilities Stock Holders Ed Misc Stocks Options Warrants Redeemable Preferred Stock Preferred	\$139,651,000,000 quity N/A N/A	\$140,318,000,000 N/A N/A	\$138,256,000,000 N/A N/A	\$134,667,000,000 N/A N/A
Total Liabilities Stock Holders Ed Misc Stocks Options Warrants Redeemable Preferred Stock Preferred Stock Common	\$139,651,000,000 quity  N/A  N/A  N/A	\$140,318,000,000 N/A N/A N/A	\$138,256,000,000 N/A N/A N/A	\$134,667,000,000 N/A N/A N/A
Total Liabilities Stock Holders Ed Misc Stocks Options Warrants Redeemable Preferred Stock Preferred Stock Common Stock Retained	\$139,651,000,000 quity  N/A  N/A  N/A  \$275,000,000	\$140,318,000,000 N/A N/A N/A \$275,000,000	\$138,256,000,000 N/A N/A N/A \$275,000,000	\$134,667,000,000 N/A N/A N/A \$275,000,000
Total Liabilities  Stock Holders Ed Misc Stocks Options Warrants  Redeemable Preferred Stock  Preferred Stock  Common Stock  Retained Earnings Treasury	\$139,651,000,000 quity  N/A  N/A  \$275,000,000  \$5,842,000,000	\$140,318,000,000  N/A  N/A  N/A  \$275,000,000  \$9,065,000,000	\$138,256,000,000 N/A N/A N/A \$275,000,000 \$10,704,000,000	\$134,667,000,000 N/A N/A N/A \$275,000,000 \$13,968,000,000

Total Stockholder

\$28,642,000,000 \$31,007,000,000 \$32,539,000,000 \$34,836,000,000

Equity
Net Tangible

**Assets** 

(\$16,589,000,000) (\$14,120,000,000) (\$11,723,000,000) (\$9,244,000,000)

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# **JAR Exhibit 5**

Value Line Report on Qwest Communications.

	74 4 41 4 1	L NYSE	Q	RECENT PRICE	2,	52 M	iποΝ	nF(iii	illing: MMF dian: MMF,	PER	TIVE N	MF	Ard DIA.D	Nil	VALUI	
TIMELINESS — <sup>6</sup> SAFETY 5 Lowered 7/5/02	LEGENDS			1		High		2 25.° 8 11.0		66	0 48	2	5.2			Price 2006
TECHNICAL — a	· · · · · · · · · · · · · · · · · · ·	a Price Streng	n H	<del></del>							101111				2005	2006
	2-for-1 split 2	2/98 5/99	<u> </u>				2-10		اواتارا	"						
8ETA 1.60 (1.00 = Market) 2005-07 PROJECTIONS	Collons Yes	indicates rece							1 A	++	+-4	. —				
Ann'i Total			=-	<del></del>	+	<del>-</del>			2-for				士			
Price Gain Return		_ +					1	<u> </u>				5				
Low 3 (+20%) 5%	<b>34</b> 7					<del>                                     </del>	+	<del>+ - :</del>	<del></del>	<del>     </del>		-1				
nsider Decisions				ļ			1,		1	1	1	- ///			┥	
NDJFMAMJJ Buy 200300000			+						<u> </u>	1-1-	1	<del>-     </del>	<del></del>			
Zetione 0000 o o o o o o o o o o o o o o o o o			+	<del></del>		1	+					''				
nstitutional Decisions			+	-	-		<del>  ,</del>	<u> </u>	<del> </del>				1			
. 402001 102002 202002						1.		1	1.				•	% T(	OT. RETURI	
D Buy 245 207 153	Percent 30,0 shares 20,0	0	<u> </u>	1	+		-		-					Ⅎ.		L ANTH.
	shares 20.0 traded 10.0							<u> </u>						1 yr. 3 yr.	-84.7 	-12.9 1.9
<b>Owest Communications Inter</b>	national. Ir	nc. 1992	1993	1994	1995	1996	1 2007							5 yr.	-	20.4
vas tounded in 1988. It was t	whollv.oud	od -	1.000	100-	1		1997	1998	1999	2000	2001	200	2 20	03 PYALL	JE LINE PUB.	, INC.
y Anshutz Company until Ju	ne 27 100	7			•••	.67	1.69	3.23	5.24	9.93				1.50 Sales p		7
men the company issued com	mon elock	in				.03 d.02	.08	.26 d.04	.64	1.95					Flow" per at	
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ad underwriter was Salomon I	Brothers	He	-		7.	346.00	413.34	694.00	750.00	1672.2					n Sha Outst	
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otal Debt \$26264 mill. Due in 5 Yr	s \$10300 mi	H.								.9%	.2%	•			'I Div'd Yiel	d
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nterest not earned)		-		- :-	p-	7.5%	16.8%	13.1%	17.3%	41.6%	37.3%	31.5				3
	(37% of Cap	m l			•	16.2	20.3	201.7	404.1	3342.0	5335.0	430	0 46		tion (\$mill)	
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nsion Liability None		1				NMF	38.4%	****	40.0%	NMF	NMF	Niki	- 1		ax Rate	44
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RRENT POSITION 2000 20	01 6/30/02	2		• •	••]	NMF	3.8%	NMF	1.0%	NMF	NAF	HA		F Retained	to Com Eq	
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# JAR Exhibit 6

# Value Line discussion of arithmetic and geometric average.

# The Differences in Averaging

One of the frequent questions we receive is related to the proper procedure to calculate the average return of an investment (stock, mutual fund, or anything else). This article will briefly examine how to compute the average change of a specific investment 1) over a set period of time, 2) over a number of years, and 3) annualizing returns over a period shorter than a year.

Averaging Calculations .

There are actually three averaging methods: arithmetic, geometric, and harmonic. These formulas are shown below:

But since it is rarely used, we will focus on the arithmetic and geometric averages in the following discussion.

### Over a Set Period of Time

The simplest way to compute the price change is to take the ending price and divide it into the beginning price. After subtracting one from the result, you are left with the holding period yield. This calculation produces the decimal fraction equivalent of the percentage change. A change in price from 4 to 5, would be computed as  $(5 \div 4) - 1$ , which yields .25, or 25%.

The holding period return is independent of time. That means that it can be

These figures are shown in the table below:

Year	Price	% Price Change	
0	\$10		
1	20	100%	
2	10	-50%	
Price change	írom year 0	to year 2: 0%	•
Arithmetic A	verage:	25%	
Geometric A	lverage:	0%	

One of the more interesting observations that arises from such an example is the asymmetric nature of the returns. Notice that in this example, the stock only has to fall half as much in year two as it rose in year one to completely wipe out any paper gains the investor had during the interim. This nature highlights the importance of using the geometric return. As shown, the arithmetic average indicates that the stock had an average annual return of 25% over the past two years. However, the true return, which is corroborated by the geometric mean, is zero.

Another interesting point is that the asymmetry magnifies as the price changes increase in size. For example, let's say the stock price increased to \$50 before falling back to \$10.

Year	Price	% Price Change
0	\$10	
1	50	400%
2	10	-80%
Price change	from year C	to year 2: 0%
Arithmetic A	werage:	160%
	\verage:	0%

Arithmetic:  $(y_1 + y_2 + ... + y_n)/n$ 

Geometric:  $(((1+y_1)*(1+y_2)*...*(1+y_n))-1)^{1/n}$ 

Harmonic:  $(1/((1/n)*((1+y_1)+(1+y_2)+...+(1+y_n)))-1$ 

In each case n is the number of years of data and each y is the ending price divided by the beginning price minus 1. Stated simply, the geometric mean is the n<sup>th</sup> root of the product of the individual averages. Since there are often negative returns involved in this sort of calculation, one is added to each term. At the end, the one is subtracted to get back to the decimal fraction number.

The arithmetic average has an upward bias, though it is the simplest to calculate. The geometric average does not have any bias, and thus is best to use when compounding (over a number of years) is involved. Lastly, the harmonic average has a downward bias.

computed on an annual basis, over a ten-year period, or any other time frame.

### Compounding: Averages Over a Number of Years

Now assume we have been watching a stock for two years, and we want to compute the annual return for each year, and the average annual return for the two-year period. Let's say this stock was initially priced at \$10, rose to \$20 by the end of year 1, but fell back down to \$10 by the end of year two. From the above-mentioned example, we know how to find the price change for the first and second year. Then we can also find the total price change over the two year period.

Originally, the stock had to fall 50% to wipe a 100% gain. But in the second scenario, the stock had to drop only 80% to wipe out a phenomenal 400% gain. This growing discrepancy between the different averaging techniques highlights the importance of accurately measuring and portraying investment results. Again we see that the geometric average portrays the true return accurately.

# **Annualizing Returns**

An annualized holding period return figure can be computed by taking the

 $1/n^{th}$  root of the holding period return, where n is the length of the sub-period relative to the year. (For a three-month period, n would equal .25, or one-fourth of the year. For a two-year period, n would equal 2.) Below are two examples that show how this operation is performed.

Let's say you wanted to figure out the annualized return of a stock that rose 5% in the first quarter. The annualized return would then be computed as (1.05)<sup>1/25</sup>, or 21.6%.

We can also compute an average annualized return figure from a period longer than a year. For example, if the stock rose 20% for two straight years, the cumulative growth rate would be 44% (1.20 \* 1.20). This figure could be dissected into the average annual rate using the same formula shown above (1.44)<sup>1/2</sup>, which we can verify as 1.20, or 20%.

Roger J. Bos Analyst

# Timely Income Stocks

For equity investors with more of an eye for current income, we've screened our database for issues that combine high estimated dividend yields and above-average relative year-ahead performance potential, without undue investment risk.

This roster includes only those equities whose dividend yields are at least 2.7%, which is 70 basis points above the 2.0% median for all stocks in Value Line's universe. Ranks here must be no less than 2 (Above Average) for Timeliness and no less than 3 (Average) for Safety.

Although the focus here is on current income and near-term price performance; we shape our oriteria to ensure solid potential returns for longer-term investors as well. Accordingly, we require a minimum projected three- to five-year total return potential of 15%, compared with the median of 14.6% for all stocks under our review. In addition, our analyst's projection for capital appreciation had to be at least 55%, which is in line with the current median price appreciation potential for all stocks in the Value Line universe.

Given the relatively stringent criteria applied here, this is a rainy short in which encompasses stocks from a fairly diverse group of industries. This list would seem to be a good starting point for income-minded investors with both short- and long-term investment perspectives. As always, though, we urge investors to consult the individual and supplementary analyses in Ratings & Reports before committing to any of the issues listed in the table below.

Ratings & Reports Page	Ticker	Company Name	Div'd Yld.	Recent Price	Time- liness	Safety	3-5 Yr. App. Pot.	3-5 Yr. Avg. Ret.	P/E
		All' Conited Marent	8.9%	27	2	3	75%	19%	10.3
2141	AC	Alliance Capital Mgmt.	3.0	26	2	3	65	16	13.0
816	ARV	Arvin Ind.	4.6	39	2	3	65	18	13.4
35 1580	MO	Philip Morris			2	3	55	15	13.1
525	KWR	Quaker Chemical	4.4	16	_	,	70	17	17.6
315	TBY	TCBY Enterprises	3.4	53/4	2	3	70 70	17	15.0
802	CTC	Telecom. de Chile ADR	2.8	32	1	3	130	25	8.3
591	TRN	Trinity Inds.	2.9	26	2	,	80	18	13.3
429	MRO	USX-Marathon Group	2.7	28	2	3	105	22	6.8
1401	X	USX-U.S. Steel Group	3.4	29	2	3		16	9.6
575	UIC	United Industrial Corp.	3.9	7'/#	2	3	60	10	9.0